



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SEP 13 2001

MEMORANDUM

SUBJECT: Registration Amendment of 1,4 Sight (EPA Reg. No.067727-1), 1,4 Sight Technical (EPA Reg. No.067727-2), 1,4 Seed (EPA Reg. No.067727-3), and (1,4 Ship (EPA Reg. No.067727-4) Containing 97.4%, 98.4%, 98.4%, and 63.8% 1,4-Dimethynaphthalene (respectively) as the Active Ingredient (Chemical No. 055802). Review of Amended Manufacturing Process for the Active Ingredient and Preliminary Analysis MRID No. 453771-01 and -02; Case No. 040626, 063181, 064425, and 065044; Submission No.: S596708, S596709; S596710, and S5967-11; DP Barcode: D276132,, D276136, D276142, and D276144

FROM: Freshteh Toghrol, Ph.D., Senior Scientist *F. Toghrol*
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division

TO: Denise Greenway, Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division

ACTION REQUESTED

D-1-1-4, Inc., requests (letter dated 3/28/01) an amended registration of 4 of the registered products 1,4 Sight (EPA Reg. No.067727-1), 1,4 Sight Technical (EPA Reg. No.067727-2), 1,4 Seed (EPA Reg. No.067727-3), and (1,4 Ship (EPA Reg. No.067727-4) containing 97.4%, 98.4%, 98.4%, and 63.8% 1,4-Dimethynaphthalene (1,4-DMN) as the active ingredient.

To support the amendment of these four products containing 1,4-DMN, the registrant has submitted an amended manufacturing process for the active ingredient (MRID No. 453771-01) and preliminary analysis of samples of new manufactured active ingredient (MRID No. 453771-

02).

Conclusions and Recommendations:

1. The amended manufacturing process

is acceptable.

2. The preliminary analysis of five batches are acceptable. The results of five batches analysis of 1,4-Dimethynaphthalene showed purity of 99.06%, 98.39%, 98.12%, 98.37%, and 98.14%.

3. The revised CSF (dated 3/8/01) and the label for 1,4 Sight Technical (EPA Reg. No.067727-2) are acceptable.

4. The submitted revised CSF and the label for 1,4 Sight (EPA Reg. No.067727-1) are not acceptable. The registrant must submit a revised CSF and a revised label for 1,4 Sight (EPA Reg. No.067727-1). The revised label should remove the word "inert" ingredient and replace it with "other" ingredient. The revised CSF should indicate the nominal concentration of the active ingredient under column 13 (b), 14(a), and 14(b).

5. The submitted revised label and CSF for 1,4 Seed (EPA Reg. No.067727-3) are not acceptable. The registrant must submit a revised CSF and a revised label for 1,4 Seed (EPA Reg. No.067727-3). The revised label should remove the word "inert" ingredient and replace it with "other" ingredient. The revised CSF should indicate the nominal concentration of the active ingredient under column 13 (b), 14(a), and 14(b).

6. The submitted revised label is acceptable for 1,4 Ship (EPA Reg. No.067727-4), but the revised CSF for 1,4 Ship (EPA Reg. No.067727-4) is not acceptable. The registrant must submit a revised CSF for 1,4 Ship (EPA Reg. No.067727-4). The revised CSF should indicate the nominal concentration of the active ingredient under column 13 (b), 14(a), and 14(b).

F I F R A

CONFIDENTIAL BUSINESS INFORMATION DOES NOT CONTAIN NATIONAL SECURITY INFORMATION (EO 12356)

Some information in the attached material may be entitled to treatment as trade secret or proprietary data section 7(d) and section 10 the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as amended.

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Section 10(f) makes it a crime for any employee to disclose confidential information except as authorized by section 7 and 10 of FIFRA. A penalty of up to \$10,000 fine and up to one year in jail may result from conviction of a violation of section 10(f).

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DATA EVALUATION RECORD

1,4-Dimethylnaphthalene

STUDY TYPE: MANUFACTURING PROCESS FOR 1,4-DIMETHYLNAPHTHALENE

Prepared for

Biopesticides and Pollution Prevention Division
Office of Pesticides Programs
U.S. Environmental Protection Agency
Crystal Station I
2800 Jefferson Davis Highway
Arlington, VA 22202

Prepared by

Tetrahedron, Inc.
1414 Key Highway
Baltimore, MD 21230

Primary Reviewer:
Nasrin Begum, PhD

Signature: Nasrin Begum
Date: Aug 22, 2001

Secondary Reviewer
Steven T. Cragg, PhD, DABT

Signature: Steven T. Cragg
Date: 8-22-01

Quality Assurance:
Waqi Alam, PhD.

Signature: Waqi Alam
Date: 8/22/01

EPA Reviewer: Freshteh Toghrul Ph.D.

F. Toghrul, Date 9/13/01

Data Evaluation Record

STUDY TYPE: Manufacturing Process for 1,4-Dimethylnaphthalene
OPPTS 830.1620

DP BARCODE: D276136

SUBMISSION CODE: S596709

P.C. CODE: 069592-1

TOX. CHEM. NO.:

MRID No.: 453771-01

TEST MATERIAL: Napthalene, 1,4-dimethyl

SYNONYMS: 1,4-dimethyl naphthalene

CITATION: Exton, M.M., (2001). Manufacturing Process for 1,4-Dimethylnaphthalene. Studies performed by Sumikin Chemical Company, completed on March 5, 2001. No report number. MRID 453771-01. Unpublished.

SPONSOR: D-I 1-4, Inc.
2307 E. Commercial St.
Meridian, ID 83542

EXECUTIVE SUMMARY: The report is a discussion paper on revised a manufacturing process for 1,4-Dimethylnaphthalene (1,4-DMN). The revised process

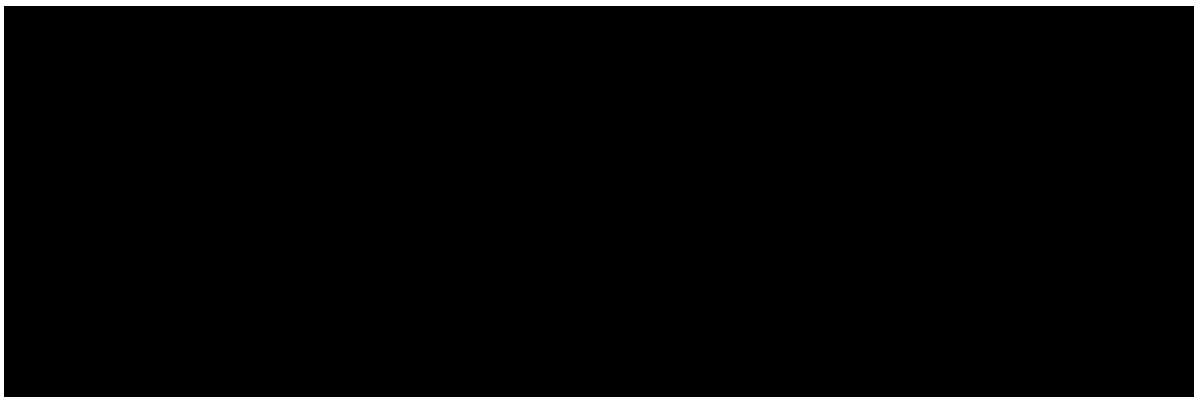
COMPLIANCE: A signed and dated Data Confidentiality statement was provided. A page is contained in this report indicating that this report does not require a statement of GLP, because this a discussion not a study. No pages addressing Data Flagging or Quality Assurance issues are provided.

A. MATERIALS

1. Test Material: 1,4-Dimethylnaphthalene.

Source: Sumikin Chemical Co. Ltd.

B. METHODS



[REDACTED]

C. RESULTS

The revised manufacturing process

[REDACTED]

[REDACTED]

D. DISCUSSION

The modified manufacturing process is

[REDACTED]

E. DEFICIENCIES

No deficiencies were noted.

DATA EVALUATION RECORD

1,4-Dimethylnaphthalene

STUDY TYPE: ANALYSIS OF SAMPLES - FIVE BATCH ANALYSIS

Prepared for

Biopesticides and Pollution Prevention Division
Office of Pesticides Programs
U.S. Environmental Protection Agency
Crystal Station I
2800 Jefferson Davis Highway
Arlington, VA 22202

Prepared by

Tetrahedron, Inc.
1414 Key Highway
Baltimore, MD 21230

Primary Reviewer:
Nasrin Begum, PhD

Signature: Nasrin Begum
Date: Aug 22, 2001

Secondary Reviewer
Steven T. Cragg, PhD, DABT

Signature: Steven T. Cragg
Date: 8-22-01

Quality Assurance:
Waqi Alam, PhD

Signature: Waqi Alam
Date: 8/22/01

EPA Reviewer: Freshteh Toghrul Ph.D.

F. Toghrul Date 9/13/01

Data Evaluation Record

STUDY TYPE: Analysis of Samples
OPPTS 830.1700

DP BARCODE: D276136
P.C. CODE: ~~069592-1~~
MRID No.: 453771-02

SUBMISSION CODE: S596709
TOX. CHEM. NO.:

TEST MATERIAL: Napthalene, 1,4-dimethyl

SYNONYMS: 1,4-dimethyl naphthalene

CITATION: Quissell, E. (2001). Analysis of Samples - Five Batches of 1,4-Dimethylnaphthanene. Belvi Research Laboratories. Final Report for Study Number 2000-001. July 10, 2000. MRID 453771-02. Unpublished.

SPONSOR: O-I 1-4, Inc.
2307 E. Commercial St.
Meridian, ID 83542

EXECUTIVE SUMMARY: The purpose of the study was to analyze five batches of 1,4-Dimethylnaphthalene (1,4-DMN) to show consistency in the production of 1,4-DMN by determining the purity of active ingredient. In addition samples were analyzed to determine the amount and identity of the impurities. To determine the purity, replicate solutions of five batches of 1,4-DMN were made by dissolving small amounts of the chemical in 50 mL of 2-propanol, resulting in fifteen solutions. Approximately 1.0 uL of each solution was injected into a gas chromatograph (GC) and analyzed through a flame ionization detector. The purity of the active ingredient, the amount of each impurity present above 0.1% and the identification of the impurities was determined from the GC chromatographs using appropriate reference standards. GC analysis showed that all fifteen replicates had a purity that exceeded 98%, with an average of 98.41%. Two impurities were seen to occur at or above 0.1%, and these were 5,8-dimethyltetraline and 1,3-dimethylnaphthalene. These impurities occurred at an average level of 1.113% and 0.477%, respectively.

COMPLIANCE:

1. A signed and dated Data Confidentiality statement was provided. A page is contained in this report indicating the GLP notebook number with the following information:
 - a. Documentation of the preparation of test substances
 - b. Location of the raw data (chromatograms corresponding to SN5 and study 2000-001 are located in a binder at the Balivi Research Laboratory).
2. Notice of amendment to, and deviation from the protocol were documented with accompanying explanation signed and dated by the Study Director, Sponsor Management and the Quality Assurance Administrator.
3. A quality assurance statement was provided with the dates of the inspection by the Quality Assurance Administrator.

A. MATERIALS

1. Test Material: Five batches of 1,4-Dimethylnaphthalene.

Source: Sumikin Chemical Co. Ltd.
Lot Number 98k-34
Purity: 99.3%

Source: Sumikin Chemical Co. Ltd.
Lot Number 98K-33
Purity: 98.8%

Source: Sumikin Chemical Co. Ltd.
Lot Number 98K-31
Purity: 98.5%

Source: Sumikin Chemical Co. Ltd.
Lot Number 98J-28
Purity: 98.6%

Source: Sumikin Chemical Co. Ltd.
Lot Number 98J-26
Purity: 98.5%

B. METHODS

The experimental design consist of preparation of calibration (reference standard) solutions, test substance solutions, and the verification solutions. A sample of each of five production batches of 1,4-DMN were prepared by accurately weighing a known amount into volumetric flask and then diluting to volume with 2-propanol. The amount of 1-4-DMN and the amount of impurities in the test substances were determined using a gas chromatograph equipped with a flame ionization detector under remote control using a Star Chromatography Workstation. Three replicate samples made from each batch were injected into the GC and analyzed using J&W DB-23 capillary column. The details of the analysis are provided (listing of parameters with conditions both for oven, and detector) in the Appendix 3 of the report. The amount of 1,4-DMN in each of the five samples were quantified by comparing the peak area to standard curve produced from the referenced samples.

C. RESULTS

Results were presented as calibration curves for reference standards, and chromatograms (peaks with elution time) for verification solutions. The percentages of each impurity found in each sample were presented in tabular form along with representative chromatograms. Results indicate that all fifteen replicates had a purity that exceeded 98%, with an average of 98.41%. Two impurities occurred at or above 0.1% (5,8-dimethyltetraline and 1,3-dimethylnaphthalene).

D. DISCUSSION

The methodology appears to be appropriate (to show consistency among batches) by determining the purity of the active ingredient of the product.

E. DEFICIENCIES

No major deficiencies noted.

Confidential Statement of Formula may be entitled to confidential treatment

Master Label

1,4SIGHT®

Aerosol Grade - Potato Dormancy Enhancer

Product Benefits:

- Naturally occurring plant biochemical delays sprouting, so smaller buds on potatoes; [and/or]
- Enhances the potato's ability to heal cuts and bruises; [and/or]
- Reduces respiration, resulting in less water loss; [and/or]
- Reduces refrigeration and ventilation needs; [and/or]
- Reduces pressure bruising; [and/or]
- Firmer potatoes with improved visual appearance.

Active Ingredient: 1,4-Dimethylnaphthalene*

Other Inert Ingredients:

TOTAL

By Weight

97.4%

2.6%

100.0%

* Contains 8.2 pounds active ingredient per gallon.

Keep Out of Reach of Children

WARNING

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through skin. Do not get in eyes or on clothing. Wear protective eyewear (goggles or face shield). Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

First Aid

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

If in eyes

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor for treatment advice.

If swallowed

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

If on skin or clothing

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

Emergency Information

For spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

Environmental Hazards

This product is highly toxic to freshwater fish and aquatic invertebrates. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Net Contents

Manufactured For
D-I-1-4, Inc.
P.O. Box 860
Meridian, ID 83680 USA

EPA Reg. Number 67727-1
EPA Est. Number 68738-JPN-001
Made in Japan
Revision D-3-S

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE

- Keep container closed. This product temporarily inhibits germination of seed potatoes.

PESTICIDE DISPOSAL

- Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL

- Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not reuse empty container.

Continue Directions for Use on Reverse

NOTICE

- 1,4SIGHT® is used as an aerosol to enhance the dormancy of potatoes during the storage phase.
- Applicators and other handlers must wear: long-sleeved shirt, long pants, shoes, socks, protective eyewear (goggles or face shield), and chemical resistant (such as nitrile or butyl) gloves.
- For reentry into treated areas during application and prior to ventilation or settling of aerosol fog, workers must wear: coveralls over long-sleeved shirt, long pants, shoes plus socks, and chemical resistant (such as nitrile or butyl) gloves; face-sealing goggles, unless a full-face respirator is worn; and a respirator with an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.
- 1,4SIGHT® must not be applied to potatoes in the field.
- 1,4SIGHT® may be applied anytime after the potatoes are placed into the storage area.
- 1,4SIGHT® is a short term dormancy enhancer which should not adversely affect eventual germination of seed potatoes.
- Let 60 days elapse before using a treated storage area as a temporary holding area for seed potatoes. Air system components (including ducts) and building must be thoroughly ventilated before area is used for storage of seed potatoes to prevent dormancy effects.
- Do not allow vapors to come in contact with storage areas used for seed potatoes within 60 days of their planting.

FORCED AIR DISTRIBUTION METHOD

1. Prepare aerosol generating equipment. The discharge from the vaporizer should be located to provide optimum distribution in the storage area. Take precautions to prevent the spray from coming into direct contact with the potatoes.
2. Running fans during the application may aid disbursement of vapors, but is not required.
3. It is advantageous to keep the storage area closed as long as practical to allow for maximum absorption into the potatoes.

TREATMENT OF STORAGE AREAS THAT DO NOT HAVE RECIRCULATING AIR SYSTEMS

These storage areas are more difficult to treat. Additional steps must be taken to treat these storage areas.

1. Prepare aerosol generating equipment. The discharge from the vaporizer should be located to provide optimum distribution in the storage area. Take precautions to prevent the spray from coming into direct contact with the potatoes.
2. Completely close off the area to be treated. This may include vent doors in the attic and walk doors around the perimeter. The large truck doors may need to be sealed to prevent excess leakage.
3. Begin treatment by following the listed steps:
 - A. Start the aerosol generator.
 - B. Adjust the location of the vaporizer so all the storage area receives an equal amount of aerosol fog. It may be necessary to move the vaporizer during the application or make the application in multiple phases. For reentry into treated areas during application and prior to ventilation or settling of the

aerosol fog, workers must wear: coveralls over long-sleeved shirt, long pants, shoes plus socks, and chemical resistant (such as nitrile or butyl) gloves; face-sealing goggles, unless a full-face respirator is worn; and a respirator with an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.

4. Wait at least 12 hours before fresh air is introduced into the storage area, then return the storage area to "normal" operation.
5. It is advantageous to keep the storage area closed as long as practical to allow for maximum absorption into the potatoes.

APPLICATION TIMING AND RATES

Application of 1,4SIGHT® can be made anytime after the potatoes are placed in the storage area.

1. Apply at rates of up to 1 pound of active ingredient per 50,000 lbs (500 cwt), which is equivalent to 20 ppm on a product to potato basis or 1 gallon per 4,000 cwt.
2. While potatoes may be retreated as necessary for effective control, do not exceed the maximum application of 80 ppm during the storage season.

1 cwt. = 100 lbs = 2.5 cubic feet; 1 ton = 20 cwt.

CONDITIONS OF SALE

D-I-1-4, Inc. warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to manufacturer, and buyer assumes the risk for any such use.

Confidential Statement of Formula may be entitled to confidential treatment

1,4SIGHT[®] TECHNICAL

Aerosol Grade - Plant Growth Regulator

Active Ingredient: 1,4-Dimethylnaphthalene*	By Weight: 93.4%
Other Ingredients:	1.6%
TOTAL	100.0%

* Contains 8.3 pounds active ingredient per gallon.

Keep Out of Reach of Children

WARNING

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through skin. Do not get in eyes or on clothing. Wear protective eyewear (goggles or face shield). Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

First Aid

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

If in eyes

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor for treatment advice.

If swallowed

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

If on skin or clothing

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

Emergency Information

For spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

Environmental Hazards

This product is highly toxic to freshwater fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

See Directions for Use on Reverse
Net Contents _____

Manufactured For:
D-I-1-4, Inc.
P.O. Box 860
Meridian, ID 83680 USA

EPA Reg. Number 67727-2
EPA Est. Number 06572-ID-001
Made in Japan
Revision 1

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Only for formulation into plant growth regulators for use on post-harvest potatoes during storage or use on seed potatoes.

This product may be used to formulate products for any additional use(s) not listed on the 1,4Sight® Technical label if the formulator, user group, or grower has complied with U.S. EPA submission requirements regarding the support of such use(s).

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE

- Keep container closed. This product temporarily inhibits germination of seed potatoes.

PESTICIDE DISPOSAL

- Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL

- Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not reuse empty container.

CONDITIONS OF SALE

D-I-1-4, Inc. warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to manufacturer, and buyer assumes the risk for any such use.

Confidential Statement of Formula may be entitled to confidential treatment

Master Label

1,4SEED™

Aerosol Grade - Seed Potato Dormancy Enhancer

Product Benefits:

- Naturally occurring plant biochemical delays sprouting, resulting in more vigorous seed growth; [and/or]
- Enhances the potato's ability to heal cuts and bruises; [and/or]
- Reduces respiration, resulting in less water loss; [and/or]
- Reduces Refrigeration and ventilation needs; [and/or]
- Reduces pressure bruising; [and/or]
- Firmer potatoes with improved visual appearance.

Active Ingredient:	1,4-Dimethylnaphthalene*	By Weight	98.4%
Other Inert Ingredients:			1.6%
TOTAL			100.0%

* Contains 8.3 pounds active ingredient per gallon.

Keep Out of Reach of Children

WARNING

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through skin. Do not get in eyes or on clothing. Wear protective eyewear (goggles or face shield). Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

First Aid

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

If in eyes	<ul style="list-style-type: none">Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none">Call a poison control center or doctor immediately for treatment advice.Have person sip a glass of water if able to swallow.Do not induce vomiting unless told to do so by a poison control center or doctor.Do not give anything by mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none">Take off contaminated clothing.Rinse skin immediately with plenty of water for 15-20 minutes.Call a poison control center or doctor for treatment advice.

Emergency Information

For spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

Environmental Hazards

This product is highly toxic to freshwater fish and aquatic invertebrates. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Net Contents _____

Manufactured For:
D-I-1-4, Inc.
P.O. Box 860
Meridian, ID 83680 USA

EPA Reg. Number 67727-3
EPA Est. Number 68738-JPN-001
Made in Japan
Revision 1

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE

- Keep container closed. This product temporarily inhibits germination of seed potatoes.

PESTICIDE DISPOSAL

- Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL

- Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not reuse empty container.

Continue Directions for Use on Reverse

NOTICE

- 1,4SEED™ is used as an aerosol to enhance the dormancy of seed potatoes prior to germination.
- Applicators and other handlers must wear: long-sleeved shirt, long pants, shoes, socks, protective eyewear (goggles or face shield), and chemical resistant (such as nitrile or butyl) gloves.
- For reentry into treated areas during application and prior to ventilation or settling of aerosol fog, workers must wear: coveralls over long-sleeved shirt, long pants, shoes plus socks, and chemical resistant (such as nitrile or butyl) gloves; face-sealing goggles, unless a full-face respirator is worn; and a respirator with an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.
- 1,4SEED™ must not be applied to potatoes in the field.
- 1,4SEED™ may be applied anytime after the potatoes are placed into the storage area.
- Do not allow vapors to come in contact with storage areas used for seed potatoes within 60 days of their planting.

FORCED AIR DISTRIBUTION METHOD

1. Prepare aerosol generating equipment. The discharge from the vaporizer should be located to provide optimum distribution in the storage area. Take precautions to prevent the spray from coming into direct contact with the potatoes.
2. Running fans during the application may aid disbursement of vapors, but is not required.
3. It is advantageous to keep the storage area closed as long as practical to allow for maximum absorption into the potatoes.

TREATMENT OF STORAGE AREAS THAT DO NOT HAVE RECIRCULATING AIR SYSTEMS

These storage areas are more difficult to treat. Additional steps must be taken to treat these storage areas.

1. Prepare aerosol generating equipment. The discharge from the vaporizer should be located to provide optimum distribution in the storage area. Take precautions to prevent the spray from coming into direct contact with the potatoes.
2. Completely close off the area to be treated. This may include vent doors in the attic and walk doors around the perimeter. The large truck doors may need to be sealed to prevent excess leakage.
3. Begin treatment by following the listed steps;
 - A. Start the aerosol generator.
 - B. Adjust the location of the vaporizer so all the storage area receives an equal amount of aerosol fog. It may be necessary to move the vaporizer during the application or make the application in multiple phases. For

reentry into treated areas during application and prior to ventilation or settling of the aerosol fog, workers must wear: coveralls over long-sleeved shirt, long pants, shoes plus socks, and chemical resistant (such as nitrile or butyl) gloves; face-sealing goggles, unless a full-face respirator is worn; and a respirator with an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter

4. Wait at least 12 hours before fresh air is introduced into the storage area, then return the storage area to "normal" operation.
5. It is advantageous to keep the storage area closed as long as practical to allow for maximum absorption into the potatoes.

APPLICATION TIMING AND RATES

Application of 1.4SEED™ can be made anytime after the potatoes are placed in the storage area.

1. Apply at rates of up to 1 pound of active ingredient per 50,000 lbs (500 cwt), which is equivalent to 20 ppm on a product to potato basis or 1 gallon per 4,000 cwt.
2. While potatoes may be retreated as necessary for effective control, do not exceed the maximum application of 80 ppm during the storage season.

1 cwt. = 100 lbs = 2.5 cubic feet; 1 ton = 20 cwt.

CONDITIONS OF SALE

D-I-1-4, Inc. warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to manufacturer, and buyer assumes the risk for any such use.

Confidential Statement of Formula may be entitled to confidential treatment



Labeling To Be On Outer Box

1,4SHIP™

Ready-To-Use Aerosol
Potato Dormancy Enhancer



For Use on Potatoes Prepared for Transportation

Active ingredient: 1,4-Dimethylnaphthalene*	By Weight 63.8%
Other ingredients	36.2%
TOTAL	100%

* Contains 3.83 ounces active ingredient per can.

Keep Out of Reach of Children

WARNING

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through skin. May be harmful if inhaled. Do not get in eyes or on clothing. Wear protective eyewear (goggles or face shield). Avoid contact with skin. Avoid breathing spray mist or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

First Aid

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Emergency Information

For spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

Physical or Chemical Hazards

Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130 °F may cause bursting. This product contains a highly flammable ingredient. It may cause a fire or explosion if not used properly. Follow the "Directions for Use" on this label very carefully.



HIGHLY FLAMMABLE INGREDIENT
INGREDIENTE ALTAMENTE INFLAMABLE

Do Not Smoke During Application or Near Treated Area!
Net Contents 6 ounces

Manufactured For:
D-I-1-4, Inc.
P.O. Box 860
Meridian, ID 83680-0860 USA

EPA Reg. Number 64727-
EPA Est. Number 11623-GA-1
Revision 1

7727-4

DL6

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE

- Store product in unopened, labeled packaging. Do not store product near or expose product to sources of heat, including open flame, sparks, welding operations, etc.

PESTICIDE DISPOSAL

- Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL

- Do not puncture or incinerate. Discard container in trash.

NOTICE

- 1,4SHIP™ is a ready-to-use aerosol which enhances the dormancy of potatoes prepared for transportation.
- During and for 30 minutes after the application, do not smoke, weld, cut metal, or allow open flame, high temperature surfaces, or other ignition sources to be near the treated area.
- Applicators and other handlers must wear: long-sleeved shirt, long pants, shoes, socks, protective eyewear (goggles or face shield), and chemical resistant (such as nitrile or butyl) gloves.
- When either a rail car or cold storage room is treated with more than one can, applicators and other handlers must additionally wear a respirator. Refer to the reentry statement below for acceptable respirator type.
- For reentry into treated areas during application or within 30 minutes post-application, for **emergencies** only, workers must wear: coveralls over long-sleeved shirt, long pants, shoes plus socks, and chemical resistant (such as nitrile or butyl) gloves; face-sealing goggles, unless a full-face respirator is worn; and a respirator with an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.
- 1,4SHIP™ is a short term dormancy enhancer which will not adversely affect eventual germination of seed potatoes.
- Let 60 days elapse before using a treated area as storage of seed potatoes. Air system and building must be thoroughly ventilated before area is used for storage of seed potatoes.
- Do not allow vapors to come in contact with storage areas used for seed potatoes within 60 days of their planting.

APPLICATION OF 1,4SHIP™

(Can graphic to be inserted here - See attached image.)

1. Fill the area to be treated (truck, rail car, shipping container, or cold storage room) with potatoes and close all but the exit door.
2. Turn off all electrical equipment (air circulators, refrigeration, etc.) in the treatment area prior to application. Turn off lighting in treatment area, and allow to cool prior to application.
3. Remove top portion of box by pulling the separator at the arrow symbol. Take out the enclosed 1,4SHIP™ tag and note the date and time of application on the space provided.
4. Position the box(es) containing the can(s) in opposite corners of the treatment area, so vapors will be dispersed throughout the area. In trucks, place box(es) at the end farthest away from the refrigeration unit (near doors).
5. Remove the back side of the double-sided tape and adhere the box containing the can to an inside cargo wall, in an area with some open volume of air around it.
6. Without removing the can from the box, remove the can cap and depress the trigger until it locks.
7. Immediately leave the area and close the exit door.
8. Feed a door seal through the 1,4SHIP™ tag and affix the seal to the exit door.
9. Do not open or enter treated area for at least 30 minutes. Do not start any electrical system within the cargo

- area for at least 30 minutes.
10. It is advantageous to keep the treated area closed as long as practical to allow for maximum product absorption into the potatoes.

APPLICATION TIMING AND RATE

Application of 1,4SHIP™ can be made anytime after the potatoes are removed from storage, prepared for shipment, and placed either in a truck, sea-going shipping container, rail car, or a cold storage room. Do not exceed recommended maximum number of cans. At the maximum use rate, this can will treat 20,000 lbs (200 cwt) of potatoes.

1. In trucks and shipping containers, apply at the rate of up to 2 cans per 40,000 lbs (400 cwt) of potatoes.
2. In rail cars, apply at the rate of up to 6 cans per 120,000 lbs (1200 cwt) of potatoes.
3. In cold storage rooms, apply at a maximum rate of 1 can per 1500 cubic feet and 20,000 lbs (200 cwt) of potatoes.

1 cwt. = 100 lbs = 2.5 cubic feet; 1 ton = 20 cwt.

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Labeling To Be On Can

1,4SHIP™

Active ingredient: 1,4-Dimethylnaphthalene*	By Weight	63.8%
Other ingredients		36.2%
TOTAL		100%

* Contains 3.83 ounces active ingredient per can.

EPA Reg. Number 67727-*

Follow the Directions for Use as labeled on the outer carton when applying this product.

Keep Out of Reach of Children

WARNING

PRECAUTIONARY STATEMENTS

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Emergency Information

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HIGHLY FLAMMABLE INGREDIENT
INGREDIENTE ALTAMENTE INFLAMABLE

Labeling To Be On 1,4SHIPTM Tag
(will be enclosed in box, and
hole-punched with a reinforced grommet)



1,4SHIPTM Application

Do Not Open Or Enter
Until 30 Minutes From

Date _____ &

Time _____

Can Graphic for Use on 1,4SHIP Label



11

13544

R138759

Chemical: Naphthalene, 1,4-dimethyl-

PC Code:

055802

HED File Code: 41500 BPPD Tox/Chem

Memo Date: 9/13/2001

File ID: DPD276132

DPD276136

DPD276142

DPD276144

Accession #: 000-00-9001

HED Records Reference Center

2/20/2007